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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,578	08/18/2003	Nicholas Leventis	2416.007US1	3949
21186 7590 03/17/2009 SCHWEGMAN, LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402				
EXAMINER COONEY, JOHN M				
ART UNIT 1796		PAPER NUMBER		
MAIL DATE 03/17/2009		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/643,578

Applicant(s)

LEVENTIS ET AL.

Examiner

John Cooney

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-23, 25-31, 36-64, 66, 67 and 69-72 is/are pending in the application.
- 4a) Of the above claim(s) 1-5, 7-22, 43-46, 50-64, 66 and 67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23, 25-31, 36-42, 47-49 and 69-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-846)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Applicant's arguments filed 11-17-08 have been fully considered but they are not persuasive.

Initial Comments on Claims

Applicants need to clarify the language of claims 26-31 to clearly indicate that the claimed ranges of % by weight values for their cross-linking agent are "based on the weight of the aerogel that is cross-linked" {or other appropriate language}. Currently, there is ambiguity in the claims because it is not seen how there can be more cross-linker {note, for example, at least 2000%} in a cross-linked aerogel which contains the cross-linker itself plus the aerogel.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 23, 25-31, 36-42, 47-49, and 69-72 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants' amendment reciting that the products claimed are formed from a preformed material that has thereon a conformal coating of an organic substance chemically bound to the preformed

material as claimed lacks support in the originally filed supporting disclosure.

Applicants' supporting disclosure, including paragraph [0069] of their supporting PGPU document, does not provide support for the invention now claimed such that it is evident that applicants, at the time the application was filed, had possession of the claimed invention. Though the indicated disclosure may provide evidence of effects and properties for exemplified specific embodiments of applicants' invention, it is not seen that this disclosure is supportive of effects and properties for all compositions embodied by their claims. It is noted that applicants even recognize in their current arguments, see pages 18 and 24 of the current response, that these results set forth are observed using a specific cross-linker and specific amounts of said cross-linker.

This is a new matter rejection.

Claim 72 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The ranges of volume relaxation energy values as claimed by applicants lacks support in the originally filed supporting disclosure. Applicants' supporting disclosure, including pages 14 & 15 of the supporting disclosure, does not provide support for the invention now claimed such that it is evident that applicants, at the time the application was filed, had possession of the claimed

invention. Though the indicated disclosure may provide evidence of effects and properties for exemplified specific embodiments of applicants' invention, it is not seen that this disclosure is supportive of effects and properties for all compositions embodied by their claims.

This is a new matter rejection.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 23, 25-31, 36-42, 47-49, and 69-72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "conformal" in claims 23, 25-31, 36-42, 47-49, and 69-72 is a relative term which renders the claim indefinite. The term "conformal" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Applicants' supporting disclosure does not set forth or define what degree of coating is intended to be included or excluded by the terminology "conformal coating".

Claim 72 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants' claim is confusing as to intent because it can not definitively be determined what composition is being defined, particularly, by the language "...preformed material that has been formed prior to reaction with an organic cross-linking agent preformed metal oxide or silicon oxide based sol-gel preformed material...". It appears that there may be wording problems or an inadvertent inclusion or omission in the wording of the claims which results in the claims being indefinite that needs to be corrected in order to overcome the above rejection. The underlining above has been used to identify where the confusing/indefinite wording appears in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 23, 25, 36, 39-42, 47-49 and 69-72 are rejected under 35 U.S.C. 102(b) as being anticipated by Novak et al.(Chem Mater. document).

Novak et al. disclose preparations of crosslinked aerogels prepared by forming a sol-gel material as defined by applicants' claims, solvent to form a wet-gel film followed by drying through supercritical and sub-critical drying processes as defined by applicants' claims, which read on the products and processes of applicants' claims (see abstract, page 282 column 2, page 283 & 284, and page 285 column 1, as well as, the entire document).

Applicants' arguments have been considered. However, rejection is maintained.

The following previous arguments are maintained:

Applicants' arguments bridging pages 11 and 12 of their response do not identify differences over Novak et al. which are supported by corresponding limitations in the claims. Claim 39 generally states resistance to rupture under load without specific degrees of rupture resistance. However, such a degree of rupture resistance is held to be inherent to the preparations of Novak et al. which do provide for organic crosslinking.

As to applicants' arguments regarding organic crosslinking, it is maintained that page 285 column 1 does provide for organic crosslinkers. Though Novak et al. notes that they were "unsuccessful at forming high-quality products" does not negate that products were obtained and are disclosed, and, accordingly, anticipated. Further, the disclosure of a composition of matter in a reference may be anticipatory even though

the reference indicates that the composition is not preferred or even that it is unsatisfactory for the intended purpose. In re Nehrenberg 126 USPQ 383.

As to applicants' latest arguments, it is held and maintained that applicants' claims as they currently stand do not distinguish over products formed through crosslinking occurring concurrently with the formation of the sol-gel material. The formation of a sol-gel framework to some degree during the concurrent crosslinking operations in the teachings of the prior art is sufficient to meet the products as they currently stand from the standpoint of patentability. It is also seen that the formation of a "conformal coating" as currently defined by the claims is insufficient in distinguishing the claims in the patentable sense, and such a property/effect as defined by the claims is inherent to the interpenetrating network materials defined by the prior art.

As to claims 39 and new claims 72, it is held and maintained that inherency of the properties/effects recited are inherent to the cited teachings because applicants' have not shown or demonstrated difference in their invention based on compositional make-up of their claimed invention or demonstrated the properties/effects defined by the claims to be associated with the manner in which their products are formed.

Claims 23, 25, 36-42, 47-49, 69, 70, and 71 are rejected under 35 U.S.C. 102(a) as being anticipated by Yim et al. (Korean J. Chem. Eng. document).

Yim et al. disclose preparations of polyisocyanate crosslinked aerogels prepared by forming a sol-gel material as defined by applicants' claims, solvent to form a wet-gel

film followed by drying through supercritical and sub-critical drying processes as defined by applicants' claims, which read on the products and processes of applicants' claims (see abstract, pages 159-162, and page 165 column 2, as well as, the entire document). As to claim 39 which generally states resistance to rupture under load without specific degrees of rupture resistance, it is held that such a degree of rupture resistance is inherent to the preparations of Yim et al. which do provide for organic crosslinking.

Applicants' arguments have been considered. However, rejection is maintained.

The following previous arguments are maintained:

Applicants' arguments bridging pages 13 and 14 of their response do not identify differences over Yim et al. which are supported by corresponding limitations in the claims. Applicants' arguments concerning the time that it takes to form the products of Yim et al. compared with applicants' are unpersuasive because they are not reflected by limitation in the claims. Applicants' arguments concerning flexibility of their structures not met by the structures of Yim et al. are unpersuasive because they are not reflected by limitation in the claims. Further, it is maintained that applicants' claims do not require exclusion of and/or distinguish over the isocyanate materials disclosed by Yim et al.

As to applicants' latest arguments, it is held and maintained that applicants' claims as they currently stand do not distinguish over products formed through crosslinking occurring concurrently with the formation of the sol-gel material. The

formation of a sol-gel framework to some degree during the concurrent crosslinking operations in the teachings of the prior art is sufficient to meet the products as they currently stand from the standpoint of patentability. It is also seen that the formation of a "conformal coating" as currently defined by the claims is insufficient in distinguishing the claims in the patentable sense, and such a property/effect as defined by the claims is inherent to the interpenetrating network materials defined by the prior art.

As to claims 39 and new claims 72, it is held and maintained that inherency of the properties/effects recited are inherent to the cited teachings because applicants' have not shown or demonstrated difference in their invention based on compositional make-up of their claimed invention or demonstrated the properties/effects defined by the claims to be associated with the manner in which their products are formed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yim et al.(Korean J. Chem. Eng. document).

Yim et al. disclose preparations of polyisocyanate crosslinked aerogels prepared by forming a sol-gel material as defined by applicants' claims, solvent to form a wet-gel

film followed by drying through supercritical and sub-critical drying processes as defined by applicants' claims (see abstract, pages 159-162, page 161 column 2 and page 165 column 2, as well as, the entire document).

Yim et al. differs from applicants' claims in that it does not specifically specify amounts of its polyisocyanate group containing crosslinking component that are used in their preparations. However, normally, changes in result effective variables are not patentable where the difference involved is one of degree, not of kind; experimentation to find *workable* conditions generally involves no more than the application of routine skill in the art of chemical engineering. *In re Aller* 105 USPQ 233. Similarly, the determination of *optimal* values within a disclosed range is generally considered obvious. *In re Boesch* 205 USPQ 215. Accordingly, it would have been obvious for one having ordinary skill in the art to have varied the amounts of the crosslinking component of Yim et al. in the preparations of Yim et al. for the purpose of adequately performing its hybrid article forming effect in order to arrive at the products of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results.

Claims 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novak et al. (Chem Mater. document).

Novak et al. disclose preparations of crosslinked aerogels prepared by forming a sol-gel material as defined by applicants' claims, solvent to form a wet-gel film followed

by drying through supercritical and sub-critical drying processes as defined by applicants' claims (see abstract, page 282 column 2, page 283 & 284, and page 285 column 1, as well as, the entire document).

Novak et al. differs from applicants' claims in that it does not specifically specify amounts of its crosslinking component that are used in their preparations. However, it is maintained that Novak et al. (page 285 column 1) does provide for organic crosslinking, and, normally, changes in result effective variables are not patentable where the difference involved is one of degree, not of kind; experimentation to find *workable* conditions generally involves not more than the application of routine skill in the art of chemical engineering. *In re Aller* 105 USPQ 233. Similarly, the determination of *optimal* values within a disclosed range is generally considered obvious. *In re Boesch* 205 USPQ 215. Accordingly, it would have been obvious for one having ordinary skill in the art to have varied the amounts of the crosslinking component of Novak et al. in the preparations of Novak et al. for the purpose of adequately performing its crosslinked article forming effect in order to arrive at the products of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results.

Applicants' arguments in regards to the above rejections under 35 USC 103 have been considered. However, they refer to failing in the references addressed in the rejections under 35 USC 102. Accordingly, no further comment in regards to these rejections is seen to be necessary.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Cooney whose telephone number is 571-272-1070. The examiner can normally be reached on M-F from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck, can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/John Cooney/

Primary Examiner, Art Unit 1796

